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ABSTRACT

A study is described in this paper that was conducted to determine the frequency and percentage of words containing Latin prefixes and roots in the "Harris Jacobson Core List" (Basic Elementary Reading Vocabularies, 1972). The results of the study indicate that the percentage of words containing Latin prefixes and roots increases significantly with each grade level, and a total of 13 Latin prefixes and 17 Latin roots were found to occur ten or more times. It is concluded that knowledge of certain Latin prefixes and roots will provide clues to the meanings of a significant number of words in the "Harris Jacobson Core List." Generalizations are provided to help instructors and pupils more easily recognize Latin roots and prefixes in English words, and related research is reviewed on the usefulness of teaching Latin affixes and roots to improve English vocabulary skills. Tables are provided showing the prefixes and roots that occurred ten or more times, indicating the frequency of their use on each grade level and their percentage in relation to the total number of words for that grade level. Appendixes include alphabetical listings of the words that contain the roots that occur ten or more times, and the grade level of the words is noted. (MKM)

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THE FREQUENCY AND PERCENTAGE OF WORDS CONTAINING LATIN PREFIXES AND ROOTS IN THE HARRIS-JACOBSON CORE LIST

by

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It has long been established that competency in reading is closely associated with competency in understanding the meanings of words in print and that there is a high correlation between one's vocabulary knowledge and reading ability. However, reading is a complex process and involves not only the ability to decode the printed message, but also the understanding of that message.

When a child first begins to read, the meaning of words to be decoded are generally familiar. As the child progresses, the material contains an increasing amount of words whose meaning is not within his/her general verbal vocabulary. It is the teacher's task to introduce new words and provide the pupil with adequate word power.

Many English words are formed by addition of an affix to a stem and, historically, a great many words have grown from one Latin root. Therefore, it seems reasonable to assume that one can greatly increase his/her vocabulary by acquiring a knowledge of these affixes.

It is the author's belief that transfer of learning takes place when the learner has the ability to perceive identical elements. Thus, when the learner becomes aware of definite meaning of specific elements within words as well as the fact that these elements can be combined to form new words, the learner will possess a powerful tool for enhancing vocabulary. It should be noted that the author is not proposing the study of the Latin language, but rather a knowledge of specific prefixes and roots derived from Latin.

It is further assumed that transfer of the knowledge of Latin to English will be limited by the number and frequency of English words derived from Latin. It is this limitation which will be investigated in

the study, although it is recognized that intelligence, as well as similarity of form and meaning, are also factors in the possibility of transfer.

Osburn (11) has made available a guide to the relative value of prefixes in the Thorndike Word Book, listing only the prefixes which occur five (5) times and utilized only in Anglo-Saxon words. He concludes that mastery of prefixes is essential to expand vocabulary.

Stauffer (17) expanded on the above study and compiled a list of the fifteen prefixes appearing most frequently and their number of occurrence. He concludes that knowledge of prefixes, suffixes and roots are essential to vocabulary development.

Breen's analysis (2) of the Rinsland study of pupils'writing lists thirty (30) prefixes, fifty-four (54) roots and nineteen (19) suffixes of greatest frequency.

Deighton (4) includes in his syllabus only those elements which have single meanings, ignoring the significance of their frequency.

Spache and Spache (16), through a combination of a number of studies, have compiled two lists. One list of meaningful units includes items with singular meanings. The second list of visual units includes items of multiple meanings. Both lists include only items of frequent occurrence.

Recently, Stotsky (18) suggested that the term "prefix" has been misconstrued in professional textbooks as well as student instructional materials. She considers only bound morphemes which are attached to free morphemes to be prefixes and emphasizes that only elements which are attached to full English words can be classified as a "prefix."

Orleans (10) attempted to measure the value of Latin in developing one's vocabulary. He compiled a list of Latin-derived words taken from the Thorndike Teachers' Word List and attempted to judge their transfer value. He concluded that the greatest gain from Latin involved less common words.

Pond (15), in an attempt to measure the degree to which various factors affect a positive correlation of Latin knowledge with English vocabulary, selected thirty (30) matched pairs from seventy nine (79) Latin and one hundred twenty nine (129) non-Latin pupils. He concludes that contrary to the conclusions of previous studies by Harris (7), Dallam (3), and Hamblen (6), general intelligence occupied a position of maximum importance.

Otis (13) attempted to measure the effect of Latin instruction on writing ability and vocabulary knowledge. His findings disagree with Pond and he concludes that, given two pupils of equal intelligence, working under like conditions of educational opportunity, the Latin pupil after two years will know 18% more English words than the non-Latin pupil.

More recently, studies pertaining to Latin Pilot Programs in middle grades in Washington D.C., Philadelphia and Indianapolis (9) conclude that Latin students (experimental group) showed significant gains in English verbal skills when compared to their non-Latin control groups.

Hypotnesis

Recent research seems to document the relevance of Latin in building English vocabulary and reading skills. To confirm the

importance of a reading program with a strong emphasis on knowledge of certain Latin prefixes and roots beginning in the middle grades, an analysis of the Harris-Jacobson Core List (Basic Elementary Reading Vocabularies, 1972) was conducted to determine the frequency and percentage of words containing Latin prefixes and roots.

It was hypothesized that not more than 10% of the words in the Harris-Jacobson Core List would contain Latin prefixes and roots and that the percentage and frequency of these words would not differ significantly among grade level.

Definitions

Prefix - One or more letters which, when added to the beginning of roots, affect their meaning. Although this is in direct contrast to Stotsky's definition previously mentioned, it is the author's opinion that when examining the usefulness of prefixes to increase the pupil's word meaning ability, it is not necessary to distinguish between the pedagogical difference of prefix and etymological element if the etymological element is attached to a meaningful root. This emphasizes the necessity of teaching the meaning of certain non-English roots. The use of words such as convention will not pose a problem if the pupil knows that venire means "to come" and that con means "with or together". The meaning of convention as a "coming together" can then be readily understood.

Assimilated Prefix - A prefix whose meaning is the same as its basic form but it is spelled differently, e.g. ac for ad.

Suffix - One or more letters which, when added to the end of roots, affect their meaning.

Root - The smallest unit in which related words can exist.

Derivative - A root to which one or more affixes have been added.

Affix - A prefix or suffix.

Limitations

One of the limitations of this study is the fact that the American Heritage Dictionary, 1970, was used to determine the origin of words. Another limiting factor is the inclusion in the data of only those prefixes and roots which occur ten (10) times in the Harris- Jacobson Core List. Finally, the study is further limited to the investigation of only those words contained in the Harris-Jacobson Core List, 1972.

Specific Procedures

The Harris-Jacobson Core List, Preprimer-Grade 6, consisting of 5,053 words was used for the study. Each word was checked in the American Heritage Dictionary, 1970, to determine its etymology. All words with prefixes or roots of Latin derivation were then extracted from the list and classified under the appropriate Latin prefix or root, with some words belonging to more than one group.

The frequency of each prefix and root was then determined. Only those prefixes and roots appearing ten (10) or more times were utilized. After a list of the prefixes and roots occurring at least ten (10) times had been compiled, the frequency of their use on each grade level was

listed and their percentage in relation to the total number of words for that grade level was computed. It should be noted here that assimilated prefixes (prefix whose meaning is the same as its basic form but it is spelled differently) were included.

Although the author acknowledges the value of recognizing certain Latin suffixes in English words, suffixes are not included in this study. It is the author's opinion that after the important prefixes and roots have been learned, suffix study should then be undertaken, the main value of which would be to determine the part of speech of the particular English word. In general, most Latin suffixes change their spelling in English and thus attempting to include suffixes along with prefixes and roots is considered unnecessary through the sixth grade reading level.

Results

Table I lists the number and percentage containing Latin prefixes and/or roots in the Harris-Jacobson Core List.

TABLE I

NUMBER OF WORDS CONTAINING LATIN PREFIXES AND/OR ROOTS

GRADE LEVEL	NO. OF DIFFERENT WORDS	NO. OF LATIN PREFIX AND/OR ROOT WORDS	% OF LATIN PREFIX AND/OR ROOT WORDS
Preprimer	58	1	1.7
Primer	63	3	4.8
First	211	34	16.1
Second	542	139	25.6
Third	877	349	39.8
Fourth	1192	500	42.0
Fifth	975	530	54.4
Sixth	1135	734	64.7

As noted in Table I, words containing Latin prefixes and/or roots can be found as early as the preprimer level of the Harris-Jacobson Core List, but the percentage or number at the level is infrequent (1.7%). At the third reader level, however, over one third of the words and about 65% of the sixth reader level words utilize Latin roots or prefixes as defined in the study.

Table II indicates the variety of prefixes found at each grade level as well as the number of times each prefix appeared at each grade level.

TABLE II

PREFIXES UTILIZED 10 OR MORE TIMES

PREFIX	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Ad (to, toward)	Second	1	542
	Third	12	877
	Fourth	18	1192
	Fifth	30	975
	Sixth	20	1135
Total		81	
Cum (with)	Third	10	877
	Fourth	24	1192
	Fifth	26	975
	Sixth	51	1135
Total		111	
De (down from, away, opposite	Third	7	877
	Fourth	5	1192
	Fifth	8	975
	Sixth	19	1135
Total		39	

TABLE II (CONTINUED)

PREFIXES UTILIZED 10 OR MORE TIMES

PREFIX	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Dis (apart,	Second	6	542
opposite)	Third	4	877
	Fourth	6	1192
	Fifth	11	975
	Sixth	12	1135
Total		39	
Ex (from,out from)	Second	1	542
	Third	12	877
	Fourth	21	1192
	Fifth	15	975
	Sixth	24	1135
Total		73	
In (in,opposite)	Third	7	877
	Fourth	11	1192
	Fifth	20	975
	Sixth	38	1135
Total		76	
Ob (toward,	Third	1	877
against)	Fourth	3	1192
	Fifth	6	975
	Sixth	8	1135
Total		18	
Per (through,by)	Third	2	877
	Fourth	4	1192
	Fifth	6	975
	Sixth	3	1135
Total		15	

TABLE II (CONTINUED)

PREFIXES UTILIZED 10 OR MORE TIMES

PREFIX	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Pr(a)e (before	Third	3	877
	Fourth	3	1192
	Fifth	5	975
	Sixth	9	1135
Total		20	
Pro (for,before)	Second	1	542
	Third	3	877
	Fourth	7	1192
	Fifth	13	975
	Sixth	9	1135
Total		33	
Re (back,again)	Second	2	542
	Third	10	877
	Fourth	19	1192
	Fifth	19	975
	Sixth	38	1135
Total		88	
Sub (under)	Third	1	877
	Fourth	10	1192
	Fifth	5	975
	Sixth	9	1135
Total		25	
Super (over,above)	Third	2	877
	Fourth	-	1192
	Fifth	4	975
	Sixth	5	1135
Total		11	

In general, Table II shows that the occurrence of prefixes increases with each grade level. The prefix ad, for example, appeared only in one word at the second grade reader level in the Harris-Jacobson Core List but increased in utilization at each subsequent grade level. A total of eighty (80) such usages occurred. The prefix ad appeared in eighty (80) different words (see Appendix A for all identified usages). Ad will be seen to have appeared in such words as address, admire, adore, adult, accent and accuse.

It is important to note that the latter two words fall under the category of assimilated prefix, i.e. the final consonant of ad is changed to make it like the initial consonant of the root to which it is attached. Additional examples are affair (af for ad), collect (col for cum) and offer (of for ob).

Table III indicates the variety of roots found at each grade level as well as the number of times each root appeared.

TABLE III

ROOTS UTILIZED 10 OR MORE TIMES

ROOT	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Ag, act (do)	Second	1	542
	Third	1	877
	Fourth	4	1192
	Fifth	3	975
	Sixth	5	1135
Total		14	

TABLE III (CONTINUED)

ROOTS UTILIZED 10 OR MORE TIMES

ROOT	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Cap, cept, cip	First	1	211
(take)	Second	2	542
	Third	1	877
	Fourth	3	1192
	Fifth	3	975
	Sixth	4	1135
Total		14	
Ced, ceed, cess	Fourth	5	1192
(move, yield)	Fifth	2	975
	Sixth	3	1135
Total		10	
Fac, fic, fact,	Third	2	877
fect (do, make)	Fourth	7	1192
	Fifth	7	975
	Sixth	5	1135
Total		21	
Fer, lat (bring)	Second	1	542
	Third	2	877
	Fourth	3	1192
	Fifth	6	975
	Sixth	6	1135
Total		18	
Mitt, miss	Third	2	877
(send, let go)	Fourth	4	1192
	Fifth	4	975
	Sixth	5	1135
Total		15	

TABLE III (CONTINUED)

ROOTS UTILIZED 10 OR MORE TIMES

ROOT	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Mov, mot (move)	Second	1	542
	Third	2	877
	Fourth	3	1192
	Fifth	4	975
	Sixth	2	1135
Total		12	
Part (part)	First	1	211
	Second	1	542
	Third	1	877
	Fourth	2	1192
	Fifth	1	975
	Sixth	4	1135
Total		10	
Pon, pos, posit	Third	1	877
(put, place)	Fourth	5	1192
	Fifth	1	975
	Sixth	6	1135
Total		13	
Serv (save)	Third	1	877
	Fourth	2	1192
	Fifth	3	975
	Sixth	4	1135
Total		10	
Spec, spic, spect	Third	2	877
(look at)	Fourth	2	1192
	Fifth	3	975
	Sixth	8	1135
Total		15	

TABLE III (CONTINUED)

ROOTS UTILIZED 10 OR MORE TIMES

ROOT	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Sta (stand)	Third	3	877
	Fourth	6	1192
	Fifth	-	975
	Sixth	5	1135
Total		14	
Tend (stretch)	Second	1	542
	Third	3	877
	Fourth	3	1192
	Fifth	5	975
	Sixth	1	1135
Total		13	
Ten, tain, tin,	Third	3	877
tent (hold)	Fourth	2	1192
	Fifth	1	975
	Sixth	6	1135
Total		12	
Trac, trai	Primer	1	63
(draw, drag)	First -	-	211
	Second	1	542
	Third	1	877
	Fourth	1	1192
	Fifth	5	975
	Sixth	4	1135
Total		13	

TABLE III (CONTINUED)

ROOTS UTILIZED 10 OR MORE TIMES

ROOT	GRADE LEVEL	FREQUENCY	# OF DIFFERENT WORDS
Ven, vent (come)	Third	4	877
	Fourth	2	1192
	Fifth	3	975
	Sixth	4	1135
Total		13	
Vid, vis (see)	Third	3	877
	Fourth	4	1192
	Fifth	4	975
	Sixth	4	1135
Total		15	

Table III shows that, in general, the occurrence of roots increases with each grade level. The root ag, act, for example, appeared only in one word at the second grade reader level in the Harris-Jacobson Core List but appeared five (5) times in the sixth grade reader level. A total of fourteen (14) such usages occurred. The root ag, act appeared in fourteen (14) different words (see Appendix B for all identified usages). Ag, act will be seen to have appeared in such words as act, activity, actress, agent.

Conclusions and Implications

It should be of interest to reading and language arts instructors to note that, as indicated in Table I, the percentage of words containing Latin prefixes and/or roots significantly increases with each grade level. Moreover, as the grade level increases so, too, does the amount of roots

or prefixes occurring ten (10) or more times (see Tables II, III).

The results confirm findings of Breen (1960), Osburn and Sheldon (1954) and Stauffer (1942) and support the importance of teaching certain Latin prefixes and roots at different grade levels to enhance the meaning of English words.

The number of words containing assimilated prefixes (see Appendix A) indicates the importance of teaching the various assimilations associated with each prefix. Likewise, pupils should also be instructed in the more common variations of English spellings for Latin roots (see Appendix B).

Instructors may find it helpful to teach pupils the following generalizations when lookig for Latin prefixes and/or roots in English words.

1. Many times the final consonant of a Latin prefix changes to the initial consonant of the root to which it is attached. This is known as assimilation.
   a) The prefix ad is generally assimilated.
   b) The prefix in is often assimilated.
   c) The prefix cum is almost always assimilated.
   d) The prefixes sub and ob are regularly assimilated before c, f, p and m.
   e) The prefix super sometimes becomes sur.

2. A verb root to which a prefix has been added may have the vowel a or e weakened to i. For example, derivatives of compounds of cap use ceive for their spellings.

3. Many times Latin prefixes have intensive force and mean completely or thoroughly. For example, in the word commotion the prefix com means greatly.

4. Many times English words add an extra vowel, e.g. treatment (trac) and view (vid).

The results do not suggest that every word listed in Appendix A or B is closely related in meaning to its derived Latin prefix or root. It is recognized that many of today's English words are quite different in meaning and spelling from their original Latin derivatives. For example, scarce, stew, squash and several other words in the appendix were originally derived from the prefix ex and a root word, a fact which is not made known by their spellings. However, knowledge of the most frequently utilized Latin prefixes and roots will, in most cases, provide clues to the meanings of 713 words in the Harris-Jacobson Core List.

Although this number may not seem significant, it should be recognized that this includes only those words with prefixes and/or roots occurring ten (10) or more times. The total number of words containing Latin prefixes and/or roots is 3,555 and thus further research reducing the frequency criteria of ten (10) in this study is indicated.

THE USEFULNESS OF TEACHING LATIN AFFIXES AND ROOTS TO IMPROVE ENGLISH VOCABULARY SKILLS: RELATED RESEARCH

Numerous studies have been undertaken to determine the usefulness of teaching prefixes, suffixes and roots for the purpose of increasing vocabulary ability. Researchers have analyzed various word lists to determine the number and frequency of affixes and roots as well as to identify the most common among them.

Studies have also been undertaken to determine the transfer value of the knowledge of Latin affixes and roots to English words and also the transfer value of known affixes and roots in familiar English words to nonfamiliar English words.

Breen (2) used the Rinsland word list to determine the Latin and Greek prefixes, suffixes and roots. He discovered 241 Latin derivatives which occur five (5) times or more and points out that due to the large amount, it is not proposed that all the affixes and roots in the Rinsland list be taught.

The root fac (from the Latin facere, "to make") and its many assumed English forms is the chief element found in the Rinsland list. Breen does not advocate the teaching of all these forms initially, but does propose that the pupils should be made aware that various pronunciations and spellings exist.

He lists thirty five (35) Latin root derivatives, nineteen (19) Greek root derivatives, fifteen (15) prefixes and eleven (11) suffixes occurring five (5) times or more which he feels are necessary for vocabulary development and independent word attack.

Deighton (4) proposes that the roots suggested by Breen should be discounted because they have more than one meaning. Thus, with the exception of a few items, all the affixes and roots in his list have

single meanings. The entire syllabus includes twenty six (26) combining forms, seven (7) word prefixes and suffixes (out, over, under, etc.), eleven (11) other prefixes and fifty seven (57) suffixes. However, unlike Breen, he totally ignores the frequency of appearance and thus the average elementary pupil might rarely or never read or write many words containing those items.

Osburn (11) has made available a guide to the relative value of prefixes in the Thorndike Teachers' Word Book, listing only the prefixes which occur five (5) times and used only with Anglo-Saxon and other common roots. He concludes that mastery of prefixes is essential to expand vocabulary.

Osburn and Sheldon (12) found that 4,328 words out of 14, 571 words in the Rinsland list came directly from Latin roots with 209 of these words being of Greek origin. More than eighty two (82) of the Latin roots occur at least ten (10) times. There are 289 of the words which come directly from Greek with six (6) occurring at least ten (10) times. Osburn concludes that it would be valuable to acquaint pupils with the eighty two (82) Latin words and six (6) Greek words.

Spache and Spache (16) have composed two lists of structural elements. The first list of meaningful units is derived from combining Deighton's list with a number of other frequency studies. It includes items with singular meanings which would aid the pupil in understanding word meanings and increase the spelling and writing ability of the pupil. Included in the list are five (5) combining forms, twelve (12) prefixes and two (2) word suffixes.

The second list, that of visual units, is a combination of high

frequency items in reading materials with Breen's list. It includes those items which would function as common units in reading, spelling and writing. They have several meanings and spellings which would not necessarily have to be learned. However, the pupils would know their pronunciations and recognize them visually. The list includes ten (10) meaningful units, nineteen (19) prefixes and various forms of noun, agent and adjectival suffixes.

The compilation of this list was the result of Spache and Spache's analysis of the structural analysis content of four popular basal reading series. They found marked variations among series with no observable constant sequence or content. The word elements seem to be taught haphazardly as they occur in the reading selections. They oppose this method for they feel it does not take into account learnability, difficulty, meaningfulness or frequency.

Stauffer (17) analyzed the 20,000 words in the Thorndike list to determine the number and frequency of prefixes. He used sixty one (61) different basic prefix forms including the various assimilated forms and found that 24% of the words have prefixes. Appearing most frequently are fifteen (15) prefixes which account for 82% of the total. Each one of these fifteen (15) is evenly distrubuted over the various levels.

The study, limited to prefixes, was conducted to show the necessity of mastering prefixes to meet language needs as well as to serve as a guide for teachers in choosing which prefixes to teach.

Stotsky (18) has recently attacked Stauffer's 1942 list of prefixes on the basis that it makes no distinction between prefixes and etymological elements and thus subsequent researchers who have relied

on this list have, according to Stotsky, proposed invalid conclusions and untested hypotheses. A replication of these studies using the two distinctions is recommended.

Stotsky contends that many elements classified as prefixes are really historical or etymological elements attached to non-English roots. In order to qualify as a prefix, a bound morpheme must be attached to a meaningful root. She does not feel that the distinction, previously proposed by Marchand, is pedantry because the stress patterns of the two are different.

Stotsky's investigation of several leading basal reading series has led her to the conclusion that a number of elements taught as prefixes are not really prefixes and are thus a source of confusion for educators and students. She cites an exercise taken from Ginn 360 which is used to teach com as a prefix. The student is required to match ten English words with their Latin roots. Stotsky contends that the use of words such as convention can pose a problem.

It is the author's opinion that Stotsky's plea for distinction between a "prefix" and an "etymological element" is only justifiable if the meaning of the root is not known. For example. if the pupil knows that ven means "to come" and that con means "with or together", the meaning of convention as a "coming together" can be readily understood.

Thus, when examining the usefulness of teaching prefixes to increase the pupil's word meaning ability, it is not necessary to distinguish between this pedagogical difference if the etymological element is attached to a meaningful root. Although this emphasizes the necessity of teaching the meaning of the more frequent non-English roots

it is also the author's opinion that even if the root is not known, the prefix in conjunction with semantic and context clues can provide the reader with at least some idea of the word's meaning.

Fillmer (5) states that systematic presentation of roots and affixes in the middle grades can increase a pupil's vocabulary by 500 words. His proposed generative vocabulary program allows for transfer of elements from familiar to new words. A distinction is made between prefixes attached to Latin roots and those attached to English words with the suggestion that the latter be taught first.

Fillmer's study of Thorndike's list indicates that there are 5,000 prefixed words and that 82% of these use one of fourteen (14) prefixes. In addition to prefixes, Fillmer advocates the learning of suffixes to identify the functions of words. Included in his list are eighteen (18) suffixes as well as fifteen (15) Latin and Greek roots.

Bedell and Nelson (2) studied the effects of teaching meaning attack (context clues), visual attack (syllabication, affixes, roots) and sound attack (phonetic analysis) on the reading achievement of middle grade pupils. The population chosen consisted of girls from upper-middle to high socioeconomic backgrounds. The mean IQ for the group was 120 with a range from 94-156. The Diagnostic Reading Tests, Survey Section: Lower Level was administered to the population. In addition to regular school activities, an experimental group was chosen for instruction on word attack thirty minutes a day for fifteen days. The pupils worked on the exercises independently and scored their own papers.

Upon completion of the fifteen periods, an alternate form of the

test was administered. Net changes in total scores received by the combined fourth, fifth and sixth grades are statistically significant at the .05 level of confidence. The combined groups also showed score gains in Word Recognition and Comprehension and a slight gain in Vocabulary subtests. Bedell and Nelson conclude that benefits in teaching word attack skills may be more readily recognized by changes in comprehension rather than in vocabulary.

The above research does not distinguish among the effects of the three different attacks used and thus it is not known which method or methods were responsible and to what degree. The experiment is also limited by the atypical population.

Otterman's (14) study in this area is more informative. The purpose of the study was to evaluate seventh grade exercises on prefixes and roots to determine if the exercises improved vocabulary, spelling, word recognition, reading comprehension and speed. Each ten minute lesson taught one prefix or word-root per day. The prefixes were taken from the list compiled by Stauffer and the roots were used as illustrations.

Each group, control and experimental, had 220 pupils. An effort was made to match the groups on the basis of sex, age, IQ, reading achievement, vocabulary and spelling. The results of the pre and post testing scores indicate that only the highest IQ group showed a significant gain in interpreting new words. However, after a six week delayed test, the experimental group was superior in vocabulary recall. A significant gain in spelling was made by the experimental group, especially boys and lower mental age pupils. The total experimental

group did not show significant superiority in speed or auditory perception but the low mental age group showed significant gains in both. There were no significant gains made in the general vocabulary and reading comprehension subtests.

This study would seem to have significant implications for methods of teaching individuals. It emphasizes the various benefits of teaching prefixes, suffixes and roots according to the individual needs of the pupils. The lower students were unable to make the transfer of elements from familiar to unknown words but their improvement in spelling and visual and auditory perception indicates the benefits of word analysis drills in these areas for lower level pupils.

Orleans (10) attempted to measure the transfer value of the study of Latin to English vocabulary. The study is based on the assumption that the value of Latin is limited by the percentage of English words derived from Latin and the possibility of transfer determined by similarity of form and meaning as well as number of derivatives.

To determine the percentage of Latin derived words a random selection in the Thorndike Teachers' Word Book was taken. Once the Latin-derived words were compiled, ten judges, including the author, were asked to judge their transfer value based on knowledge of their Latin origins and their English meanings. The results indicate that there is an increase in transfer possibility with the decrease in frequency of the words in English literature, i.e. the greatest value is with the less common words. He concludes that further study is needed to determine what percentage of high school pupils would meet a sufficient percentage of less common words to make the study of Latin

feasible.

Orlean's method of determining transfer value is questionable since the transfer value attributed to each word is purely subjective, based solely on the personal opinions of the judges.

Pond (15) set out to determine if Latin students have more extensive English vocabularies and to what extent general intelligence, reading experiences, number of Latin semesters and achievement in Latin have affected their English vocabularies. He cites numerous studies, among them those done by Harris (7), Dallam (3) and Hamblen (6), in which Latin students surpassed non-Latin students in their ability to understand English words. However, Pond points out that in none of these studies is any allowance made for the possibility of the Latin groups being superior in general intelligence as well as in general verbal ability.

Using the partial-correlation technique on vocabulary scores derived from 79 Latin and 129 non-Latin pupils, combined with IQ scores, informal tests of reading quantity and quality, as well as school records, it was determined that quantity and quality of reading did not contribute greatly nor did number of semesters. However, intelligence as a conditioning factor was apparent. Pond then chose thirty matched pairs based on intelligence, sex, age, semesters in school and school achievement. According to test scores, the Latin group showed little, if any, difference in vocabulary knowledge leading Pond to conclude that little transfer from Latin to English occurs under ordinary classroom circumstances.

The findings of Otis (13) disagree with those of Pond. Otis

secured two groups of forty two (42) pupils in each, one Latin and one non-Latin, exactly equal in intelligence scores by the Terman Mental Ability Test. The pupils were given a two part English test. One part consisted of writing an English composition of about 150 words. The second part consisted of giving definitions of fifty Latin derived words but not directly associated with the Latin course.

Otis concludes that given two pupils of equal intelligence, the Latin student after two years will have a passive English vocabulary 33% larger on its Latin derived side than the non-Latin student, which means he/she will know 18% more English words. He also concludes that his/her writing ability will be 6.5% better.

Masciantonio (8) has made available a review and summary of recent research which seems to prove the effectiveness of Latin in building English vocabulary. He cites eight Latin pilot programs in which an experimental group (Latin students) and a control group (non-Latin students) were pretested, post-tested and then compared in English verbal skills. In each program, the Latin student showed significant gains. He also cites other studies supporting the significance of Latin in improving language skills and challenges educators to assume responsibility and respond to the findings.

Mavrogenes (9) presents an argument for Latin instruction in elementary schools in order to improve language abilities and help solve the existing national linguistic problem. She cites a Washington D.C. study in which sixth graders who took Latin for one year "came from behind to achieve significantly higher reading achievement scores." Because 50% of our English words are derived from Latin, the pupil's

vocabulary is increased.

Mavrogenes reports on the results of six Latin programs in schools in Philadelphia, Washington D.C., Easthampton, Massachusetts, Indianapolis and Boston and a project of the Human Engineering Lab of the Johnson O'Connor Research Foundation. In all of the studies the Latin pupils scored significantly higher than the non-Latin pupils. A typical instruction during a daily twenty minute period is described as including much aural-oral work, multi-sensory aids and programmed instruction. Emphasis is placed on derivatives and English grammar.

The research presented is evidence that many studies have been done to determine the value of Latin as an aid to improving English vocabulary. Some studies have focused mainly on instruction of the meanings of Latin affixes and roots without actually teaching the Latin language. Others have concentrated on the effects of an entire Latin program and thus the precise value of affix and root knowledge is not distinguished among the benefits of grammar and linguistic knowledge which is necessarily derived from the study of a second language.

The more recent Latin pilot programs, unlike the traditional classic Latin curricula, place a strong emphasis on the transfer of knowledge of Latin to English. This would seem to account for the significant gains in English vocabulary demonstrated by the pupils enrolled in such programs.

Thus, while the majority of studies conclude that knowledge of Latin affixes and roots does have a beneficial effect on English vocabulary, researchers disagree as to the extent and reasons for the effect, the transfer values involved, as well as the kind and degree of instruction necessary.

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APPENDIX A

An alphabetical listing of all words in the Harris-Jacobson Core List containing prefixes occurring ten (10) or more times. It should be noted that some words contain more than one prefix.

ENGLISH WORD	PREFIX	GRADE LEVEL
abandon	ad	fifth
accent	ad	fifth
accept	ad	fourth
accident	ad	third
accompany	ad, cum	fifth
accomplish	ad, cum	fifth
accomplishment	ad, cum	fifth
according	ad	fourth
account	ad	fourth
accurate	ad	fifth
accuse	ad	fourth
accustom	ad	fifth
achieve	ad	fifth
achievement	ad	fifth
acquaint	ad, cum	fifth
addition	ad	fifth
address	ad	third
admiral	ad	fifth
admiration	ad	fourth
admire	ad	fifth
admit	ad	fourth
adopt	ad	fifth
adore	ad	fifth
adult	ad	fourth
adventure	ad	third
advertise	ad	fifth
advice	ad	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
advise	ad	fifth
affair	ad	fourth
affect	ad	fifth
affection	ad	fifth
affectionate	ad	fifth
agree	ad	third
alarm	ad	third
alert	ad	fourth
allow	ad	third
ally	ad	sixth
amount	ad	fourth
amuse	ad	fourth
announce	ad	fourth
announcement	ad	sixth
announcer	ad	sixth
annoy	in	fifth
apart	ad	third
apartment	ad	second
apparatus	ad	sixth
appear	ad	third
appearance	ad	sixth
appetite	ad	sixth
applaud	ad	sixth
applause	ad	sixth
apply	ad	fifth
appreciate	ad	fifth
appreciation	ad	sixth
apprentice	ad	fifth
approach	ad	fourth
appropriate	ad	fifth
approval	ad	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
approve	ad	sixth
apricot	pr(a)e	fifth
arrest	ad, re	fourth
arrival	ad	sixth
arrive	ad	third
ascend	ad	sixth
assemble	ad	sixth
assembly	ad	sixth
assign	ad	fifth
associate	ad	sixth
association	ad	sixth
assume	ad	sixth
assure	ad	fifth
astonish	ex	fourth
astonishment	ex	fourth
attempt	ad	fifth
attend	ad	fourth
attendant	ad	fifth
attention	ad	third
attract	ad	fifth
avenue	ad	sixth
await	ad	fourth
award	ex	sixth
coil	cum	fourth
collapse	cum	fourth
collect	cum	fourth
collection	cum	fourth
collide	cum	sixth
combat	cum	sixth
combination	cum	fifth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
comfort	cum	fourth
comfortable	cum	third
command	cum	fourth
commander	cum	fifth
comment	cum	sixth
commercial	cum	sixth
commission	cum	sixth
commit	cum	sixth
committee	cum	sixth
commotion	cum	fifth
communicate	cum	fifth
communication	cum	sixth
community	cum	fifth
companion	cum	fourth
company	cum	third
comparative	cum	sixth
compare	cum	fourth
comparison	cum	sixth
compartment	cum	fifth
compass	cum	fifth
compete	cum	sixth
competition	cum	sixth
complain	cum	third
complaint	cum	sixth
complicate	cum	sixth
compliment	cum	fifth
composition	cum	sixth
compound	cum	fourth
compute	cum	sixth
concentrate	cum	fifth
concern	cum	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
conclude	cum	sixth
conclusion	cum	fifth
concord	cum	fifth
concrete	cum	fourth
condemn	cum	sixth
condition	cum	fourth
conduct	cum	sixth
conductor	cum	fifth
conference	cum	sixth
confess	cum	fourth
confide	cum	sixth
confidence	cum	sixth
confident	cum	fifth
confront	cum	sixth
confuse	cum	fourth
confusion	cum	fifth
congratulate	cum	sixth
congratulations	cum	sixth
congress	cum	sixth
connect	cum	fifth
conquer	cum	fifth
conscience	cum	sixth
consent	cum	fifth
consequence	cum	sixth
conservation	cum	sixth
conserve	cum	sixth
consider	cum	fourth
considerable	cum	sixth
consist	cum	fifth
console	cum	sixth
constant	cum	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
constitution	cum	fifth
construct	cum	fifth
construction	cum	sixth
consume	cum	sixth
contact	cum	fifth
contain	cum	fourth
content	cum	third
contest	cum	third
contestant	cum	sixth
context	cum	sixth
continual	cum	sixth
continue	cum	third
contract	cum	sixth
contraption	cum	sixth
contrast	cum	sixth
contribute	cum	sixth
contribution	cum	fifth
convenience	cum	sixth
convenient	cum	fourth
conversation	cum	fourth
convey	cum	sixth
convince	cum	fourth
cooperate	cum	sixth
cooperation	cum	sixth
correct	cum	fourth
cost	cum	third
costume	cum	fourth
couch	cum	sixth
countdown	cum	sixth
counter	cum	sixth
cousin	cum	third

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
custom	cum	fourth
customary	cum	sixth
customer	cum	third
decay	de	sixth
deceive	de	sixth
decide	de	third
declare	de	third
decline	de	sixth
decrease	de	sixth
dedicate	de	sixth
defeat	dis	fifth
definite	de	sixth
degree	de	fourth
delay	de	fifth
deliberate	de	sixth
delight	de	third
deliver	de	third
demand	de	third
demonstrate	de	sixth
denounce	de	sixth
deny	de	fifth
depart	de	sixth
department	de	fourth
departure	de	sixth
dependent	de	sixth
descend	de	sixth
descendant	de	fifth
description	de	fifth
descriptive	de	sixth
deserve	de	third
design	de	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
despair	de	fourth
desperate	de	fourth
desperation	de	sixth
despise	de	sixth
despite	de	sixth
destruction	de	sixth
detail	de	fifth
detective	de	third
determination	de	fifth
determine	de	fifth
develop	dis	fourth
differ	dis	sixth
difference	dis	third
different	dis	second
difficult	dis	third
dine	dis	second
direct	dis	second
direction	dis	second
disappear	dis, ad	third
disappoint	dis, ad	third
disappointment	dis	fifth
disaster	dis	fifth
disbelief	dis	fifth
discard	dis	sixth
discontent	dis, cum	sixth
discourage	dis	fifth
discover	dis	second
discovery	dis	fourth
discuss	dis	fifth
discussion	dis	sixth
disease	dis	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
disgrace	dis	fourth
disguise	dis	fifth
disgust	dis	fifth
dismal	dis	fifth
dismay	dis	fifth
dismiss	dis	fifth
display	dis	fifth
dispose	dis	sixth
dissolve	dis	fifth
distance	dis	second
distant	dis	fourth
distince	dis	sixth
distract	dis	sixth
distribute	dis	sixth
district	dis	sixth
disturb	dis	fourth
disturbance	dis	sixth
ease	ad	fourth
effect	ex	fourth
effort	ex	fourth
elaborate	ex	sixth
elect	ex	fourth
eliminate	ex	sixth
embarrass	in	fifth
embarrassment	in	sixth
embrace	in	sixth
emerge	ex	sixth
emergency	ex	fifth
emotion	ex	fifth
emperor	in	fifth
employ	in	fifth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
employee	in	sixth
enable	in	sixth
enchant	in	fourth
encircle	in	sixth
enclose	in	sixth
encounter	in	sixth
encourage	in	fifth
encouragement	in	sixth
endurance	in	fifth
endure	in	sixth
enemy	in	third
enforce	in	fifth
enormous	ex	third
envy	in	fourth
erect	ex	sixth
escape	ex	third
escort	ex	sixth
evaporate	ex	fifth
event	ex	fourth
eventual	ex	fifth
evidence	ex	sixth
evident	ex	sixth
exact	ex	third
exaggerate	ex	sixth
exaggeration	ex	sixth
examination	ex	sixth
examine	ex	fourth
example	ex	third
exasperate	ex	fifth
exceeding	ex	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
except	ex	third
exchange	ex	fourth
excited	ex	second
excitement	ex	third
exclaim	ex	third
exclamation	ex	sixth
excuse	ex	fourth
exercise	ex	third
exhaust	ex	fifth
exhaustion	ex	sixth
exhibit	ex	sixth
exist	ex	fifth
existence	ex	sixth
expand	ex	sixth
expanse	ex	sixth
expect	ex	third
expectant	ex	sixth
expedition	ex	fifth
expense	ex	fifth
expensive	ex	fourth
experimental	ex	fifth
explain	ex	third
explode	ex	fifth
exploration	ex	sixth
explore	ex	third
explosion	ex	fifth
explosive	ex	sixth
expose	ex	sixth
express	ex	fourth
expression	ex	fourth
extend	ex	fifth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
illuminate	in	sixth
illustrate	in	sixth
immense	in	sixth
immigrant	in	sixth
impact	in	sixth
imply	in	sixth
import	in	sixth
importance	in	fifth
impression	in	sixth
impulse	in	fifth
incline	in	fifth
include	in	fifth
increase	in	fourth
incredible	in	sixth
incredulous	in	sixth
independence	in, de	fifth
indignant	in	sixth
indignation	in	sixth
individual	in	fifth
infant	in	sixth
infection	in	sixth
influence	in	fifth
inform	in	fifth
information	in	fourth
ingredient	in	sixth
inhabitant	in	fifth
injure	in	fifth
injury	in	sixth
inland	in	fourth
inning	in	fourth
innocent	in	fourth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
inquire	in	sixth
inquiring	in	sixth
inscribe	in	sixth
insect	in	third
insignificant	in	sixth
insist	in	third
inspect	in	fifth
inspire	in	sixth
instance	in	sixth
instant	in	fourth
instinct	in	sixth
instrument	in	fourth
intend	in	fourth
intense	in	sixth
intent	in	fifth
invade	in	sixth
invasion	in	sixth
invent	in	third
invention	in	third
inventor	in	third
investigate	in	sixth
invisible	in	third
involve	in	fifth
irregular	in	sixth
issue	ex	fifth
lunge	ad	fifth
obedient	ob	fifth
object	ob	fourth
objection	ob	sixth
objective	ob	sixth
observation	ob	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
observe	ob	fourth
obstacle	ob	fifth
obtain	ob	sixth
obvious	ob	fifth
occasion	ob	fifth
occasional	ob	fifth
occupation	ob	sixth
occupy	ob	sixth
occur	ob	fifth
offer	ob	third
onto	in	fourth
opportunity	ob	sixth
oppose	ob	sixth
opposite	ob	fourth
pardon	per	fifth
pedestal	de	sixth
per	per	sixth
perfect	per	third
perform	per	fourth
performance	per	fifth
perfume	per	fifth
perhaps	per	third
permanent	per	fifth
permission	per	fourth
permit	per	fifth
perplex	per	fifth
persist	per	sixth
perspiration	per	sixth
persuade	per	fourth
pierce	per	fourth
precaution	pr(a)e	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
precipice	pr(a)e	sixth
precise	pr(a)e	sixth
predict	pr(a)e	fifth
prefer	pr(a)e	fifth
prefix	pr(a)e	fourth
premises	pr(a)e	sixth
preparation	pr(a)e	fourth
prepare	pr(a)e	third
presence	pr(a)e	sixth
present	pr(a)e	third
preserve	pr(a)e	fifth
president	pr(a)e	fourth
pretend	pr(a)e	third
prevail	pr(a)e	sixth
prevent	pr(a)e	fifth
prevention	pr(a)e	sixth
previous	pr(a)e	sixth
proceed	pro	fifth
process	pro	fifth
procession	pro	sixth
proclaim	pro	sixth
produce	pro	fifth
product	pro	fifth
production	pro	sixth
profession	pro	sixth
professional	pro	fifth
professor	pro	third
profit	pro	fifth
progress	pro	sixth
project	pro	fifth
prominent	pro	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
promise	pro	third
prompt	pro	fourth
pronounce	pro	fourth
propeller	pro	fourth
proportion	pro	sixth
propose	pro	fifth
prospect	pro	fifth
protect	pro	third
protection	pro	fifth
protective	pro	sixth
protest	pro	fourth
proud	pro	second
provide	pro	fourth
provision	pro	fifth
purchase	pro	fifth
purpose	pro	fourth
pursue	pro	fifth
pursuit	pro	sixth
react	re	sixth
recall	re	fifth
receive	re	fourth
recess	re	fourth
recipe	re	sixth
recite	re	fourth
recognize	re	third
recommend	re	sixth
record	re	third
recover	re	fourth
reduce	re	sixth
refer	re	sixth
reference	re	fifth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
reflect	re	sixth
reflection	re	sixth
reform	re	sixth
refrigerator	re	third
refuge	re	fifth
refuse	re	third
regard	re	fifth
register	re	sixth
regret	re	sixth
rehearsal	re	sixth
rehearse	re	sixth
rein	re	third
reinforce	re, in	sixth
rejoice	re	sixth
relate	re	fourth
relation	re	fourth
relationship	re	sixth
relative	re	fifth
relax	re	fourth
relay	re	fifth
release	re	fifth
relent	re	sixth
reliable	re	sixth
relieve	re	fifth
religion	re	sixth
religious	re	fifth
reluctant	re	sixth
rely	re	sixth
remain	re	fourth
remedy	re	sixth
remember	re	second

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
remembrance	re	sixth
remind	re	fourth
reminder	re	sixth
remote	re	sixth
remove	re	fourth
render	re	sixth
renew	re	sixth
repair	re	third
repeat	re	fourth
replace	re	fourth
reply	re	third
report	re	third
represent	re	fourth
representative	re	sixth
request	re	fifth
require	re	fifth
rescue	re, ex	fourth
research	re	fourth
resemble	re	sixth
reservation	re	fourth
reserve	re	sixth
resist	re	fifth
resolution	re	fifth
resolve	re	fourth
resource	re	fifth
respect	re	third
respectful	re	sixth
respond	re	fifth
response	re	sixth
responsible	re	sixth
restore	re	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
result	re	fourth
retort	re	sixth
retreat	re	fourth
return	re	second
reveal	re	fifth
revenge	re	sixth
reverse	re	fifth
review	re	sixth
revive	re	sixth
revolution	re	fifth
revolutionary	re	fifth
revolve	re	sixth
rummage	ad	sixth
rush	re	third
scarce	ex	fourth
soar	ex	fourth
somersault	super	fifth
souvenier	sub	sixth
squad	ex	sixth
squash	ex	fourth
squat	ex, cum	fourth
stain	dis	fifth
stew	ex	third
stifle	ex	sixth
stranger	ex	fourth
stun	ex	fifth
sturdy	ex	fourth
subject	sub	fourth
submarine	sub	fifth
submerge	sub	sixth
submit	sub	sixth

APPENDIX A (CONTINUED)

ENGLISH WORD	PREFIX	GRADE LEVEL
substance	sub	sixth
substitute	sub	sixth
subtract	sub	fifth
suburb	sub	sixth
subway	sub	fifth
succeed	sub	fourth
success	sub	fourth
successful	sub	fourth
suffer	sub	fourth
sufficient	sub	sixth
suggest	sub	fourth
suggestion	sub	fourth
summon	sub	fifth
super	super	fifth
superb	super	sixth
superintendent	super	fifth
superior	super	sixth
supermarket	super	sixth
superstition	super	sixth
supply	sub	fourth
support	sub	fourth
suppose	sub	third
surface	super	third
surge	sub	sixth
surround	super	third
survey	super	sixth
survive	super	fifth
suspect	sub	fourth
suspense	sub	fifth
suspicion	sub	sixth
unexpected	ex	fourth
vanish	ex	fourth
vice-president	pr(a)e	sixth

APPENDIX B

An alphabetical listing of all words in the Harris-Jacobson Core List containing roots occurring ten (10) or more times. It should be noted that some words contain both a Latin prefix and root and subsequently appear in both Appendix A and Appendix B.

ENGLISH WORD	ROOT	GRADE LEVEL
accept	cept	fourth
act	act	second
action	act	fourth
active	act	fifth
activity	act	fifth
actor	act	sixth
actress	act	sixth
actual	act	fourth
admit	mit	fourth
adventure	vent	third
advice	vis	fourth
advise	vis	fifth
affair	fac	fourth
affect	fect	fifth
affection	fect	fifth
affectionate	fect	fifth
agent	ag	fifth
ancestor	cess	fourth
ancestry	cess	sixth
apart	part	third
apartment	part	second
arrest	sta	fourth
attend	tend	fourth
attendant	tend	fifth
attention	tend	third
attract	trac	fifth

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
automobile	mov	third
avenue	ven	sixth
benefit	fic	sixth
capable	cap	fifth
captive	cap	fifth
capture	cap	fourth
catch	cap	first
catcher	cap	fifth
caught	cap	second
chafe	fac	sixth
chase	cap	second
circumstance	sta	sixth
commission	miss	sixth
commit	mitt	sixth
committee	mitt	fourth
commotion	mot	fifth
compartment	part	fifth
composition	posit	sixth
compound	pon	fourth
conference	fer	sixth
conservation	serv	sixth
conserve	serv	sixth
constant	sta	fourth
contain	tain	fourth
content	tent	third
continual	tin	sixth
continue	tin	third
contract	trac	sixth
convenience	ven	sixth
conversation	ven	fourth
cost	sta	third

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
deceive	cep	sixth
defeat	fac	fifth
depart	part	sixth
department	part	fourth
departure	part	sixth
despise	spic	sixth
despite	spic	sixth
differ	fer	sixth
difference	fer	third
different	fer	second
dignify	fic	sixth
discontent	tent	sixth
dismiss	miss	fifth
dispose	pos	sixth
distance	sta	third
distant	sta	fourth
effect	fect	fourth
emotion	mot	fifth
entertain	tain	fourth
entertainment	tain	sixth
envy	vid	fourth
event	vent	fourth
eventual	vent	fifth
evidence	vid	sixth
evident	vid	sixth
exact	act	third
examination	ag	sixth
examine	ag	fourth
exceeding	ceed	sixth
except	cept	third
expect	spect	third

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
expectant	spect	sixth
expose	pos	sixth
extend	tend	fifth
fact	fact	third
factory	fact	fourth
fashion	fac	fourth
feature	fac.	fourth
fertile	fer	fifth
fertilizer	fer	fifth
infection	fect	sixth
inland	in	second
inspect	spect	fifth
instance	sta	sixth
instant	sta	fourth
intend	tend	fourth
intense	tend	sixth
intent	tend	fifth
interview	vid	fifth
invent	vent	third
invention	vent	third
inventor	vent	third
invisible	vis	third
legislature	lat	fifth
lieutenant	ten	sixth
maintain	tain	sixth
manufacture	fact	fifth
mess	miss	fifth
message	miss	third
messenger	miss	fourth
mission	miss	fifth
missionary	miss	sixth

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
missle	miss	fifth
motion	mot	fourth
motionless	mot	fifth
motive	mot	sixth
motor	mot	third
move	mov	second
movement	mov	fifth
movie	mov	fourth
navigator	ag	sixth
observation	serv	sixth
observe	serv	fourth
obstacle	sta	fourth
obtain	tain	sixth
occupation	cap	sixth
occupy	cap	sixth
ofier	fer	third
oppose	pos	sixth
opposite	posit	fourth
pacific	fic	fourth
parcel	part	sixth
particle	part	sixth
particular	part	fourth
party	part	first
perfect	fect	third
permission	miss	fourth
permit	mitt	fifth
portray	trai	sixth
position	posit	fourth
positive	posit	sixth
post	pos	fourth
postpone	pos	sixth

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
prefer	fer	fifth
premises	miss	sixth
preserve	serv	fifth
pretend	tend	third
prevent	vent	fifth
prevention	vent	sixth
proceed	ceed	fifth
process	cess	fifth
procession	cess	sixth
profit	fic	fifth
promise	miss	third
propose	pos	fifth
prospect	spect	fifth
provide	vid	fourth
provision	vis	fifth
purpose	pos	fourth
react	act	sixth
receive	cap	fourth
recess	cess	fourth
recipe	cip	sixth
refer	fer	sixth
reference	fer	fifth
rein	tin	third
relate	lat	fourth
relation	lat	fourth
relationship	lat	sixth
relative	lat	fifth
remote	mot	sixth
remove	mov	fourth
reservation	serv	fourth
reserve	serv	sixth

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
respect	spect	third
respectful	spect	sixth
retreat	trai	fourth
review	vid	sixth
satisfaction	fact	fifth
satisfy	fac	fourth
sergeant	serv	fifth
servant	serv	third
service	serv	fourth
souvenir	ven	sixth
specimen	spec	sixth
spectacle	spect	fifth
spectacular	spect	sixth
spectator	spect	sixth
squat	act	fourth
stage	sta	fourth
stanza	sta	sixth
status	sta	third
submit	mitt	sixth
substance	sta	sixth
subtract	trac	fifth
succeed	ceed	fourth
success	cess	fourth
successful	cess	fourth
suffer	fer	fourth
sufficient	fic	sixth
superintendent	tend	fifth
superstition	sta	sixth
suppose	pos	third
survey	vid	sixth
suspect	spect	fourth

APPENDIX B (CONTINUED)

ENGLISH WORD	ROOT	GRADE LEVEL
suspicion	spic	sixth
television	vis	third
tend	tend	fourth
tender	tend	third
tennis	ten	fifth
tense	tend	fifth
tent	tend	second
trace	trai	fifth
trail	trai	third
trailor	trai	fifth
train	trai	primer
trait	trai	sixth
transfer	fer	sixth
translate	lat	sixth
treatment	trai	fifth
unexpected	spect	fourth
venture	vent	fifth
view	vid	third
visible	vis	fourth
vision	vis	fifth